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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,313	03/29/2001	Nagayuki Takao	0152-0555P	1864

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,313

Applicant(s)

TAKAO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-9 and 13-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 9, 13-15 and 18-22 is/are rejected.
- 7) ☐ Claim(s) 6, 7, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Applicants' amendment filed 2/13/04 has been entered. The amendment overcomes the rejections of record as set forth in paragraphs 4-5 of the office action mailed 7/16/03, namely, Tsubuko et al. (U.S. 5,952,048) in view of Ryntz et al. (U.S. 4,673,718) and further in view of Zahrobsky et al. (U.S. 5,936,027).

As noted by applicants, the cancellation of claims 10-12 and insertion of each of the limitations into claim 1 overcomes the 35 USC 102 rejection of record with respect to Ikeda et al. (U.S. 5,952,429) as well as renders the 35 USC 103 rejections of claims 10-12 by Ikeda moot. However, while the rejections of record with respect to Ikeda et al. have been overcome in light of applicants' amendment, applicants have not overcome the use of the Ikeda et al. reference against the present claims as set forth below: That is, while Ikeda et al. is no longer a 35 USC 102 reference against the present claims, it is now applicable against the present claims under 35 USC 103 for the same reasons set forth in paragraph 6 of the office action mailed 7/16/03. Applicants have not addressed these reasons.

In light of applicants' amendment, the remaining rejections of record have been re-stated below in order to reflect the changes set forth in the amendment. Thus, the finality of the previous office action has been withdrawn. However, the present office action is final given that the new grounds of rejection as set forth below are necessitated by applicants' amendment filed 2/13/04.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 8-9, 13-15, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (U.S. 5,952,429).

Ikeda et al. disclose ink jet ink comprising organic solvent such as hexane, toluene, xylene, etc and colorant which is carbon black attached to silicone graft copolymer. The colorant is obtained by polymerizing polymerizable monomer in the presence of polysiloxane macromonomer in the presence of silicone oil. The polymerizable monomers include (meth)acrylic acid and hydroxyalkyl (meth)acrylamide. The carbon black has particle size of 0.0005 – 0.5 μm while the colorant has particle size of 0.001-0.5 μm . Thus, it is clear that the particle size of the silicone graft copolymer overlaps that presently claimed. The molecular weight of the silicone graft copolymer is 5000-100,000 while the molecular weight of the graft portion is 5,000-50,000. The ratio of silicone graft copolymer to carbon black present in the colorant is 1-1000:100. The ink comprises 100 parts solvent per 100 parts carbon black (col.12, lines 23-26, col.16, lines 53-60, col.20, lines 41-49, col.22, lines 24-28 and 33-38, col.23, lines 56-63, col.24, lines 28-37, col.30, lines 8-9 and 32-67, col.34, lines 17-34, col.43, lines 24-28, col.44, lines 7-12, col.48, lines 31-45, col.54, lines 38-46, and col.55, lines 25-29 and 60-65). Although there is no explicit disclosure of the viscosity of the ink, given that the ink is used in ink jet printing as presently claimed and given that the ink contains the same ingredients as

presently claimed, it is clear that the ink would intrinsically possess viscosity as presently claimed.

The difference between Ikeda et al. and the present claimed invention is the requirement in the claims of the acid number, amine number, and hydroxyl number of the silicone graft copolymer.

Ikeda et al. disclose silicone graft copolymer that is obtained from monomers that include carboxylic acid groups, amino groups, and hydroxyl groups, however, there is no disclosure of the acid number, amine number, and hydroxyl number of the graft copolymer.

However, one of ordinary skill in the art would have recognized that the acid number, amine number, and hydroxyl number effect the waterfastness, solubility, and fixation properties of both the graft copolymer and the ink. Therefore, absent evidence to the contrary, it would have been obvious to one of ordinary skill in the art to control the acid number, amine number, and hydroxyl number of the silicone graft copolymer of Ikeda et al., i.e. by controlling the type and amount of monomers used to obtain the polymer, to values, including those presently claimed, in order to produce an ink with desired properties, and thereby arrive at the claimed invention.

4. **NOTE:** In light of applicants' amendment filed 2/13/04, Tsubuko et al. and Ryntz et al. are no longer applicable against the present claims because there is no disclosure in Tsubuko et al. of silicone graft polymer and thus, no disclosure of silicone graft polymer having acid value, hydroxyl value, and amine value as presently claimed. Further, while Ryntz et al. disclose the

use of silicone graft polymer, there is no disclosure or suggestion that the silicone graft polymer has amine value as required in all the present claims.

Applicants submitted declaration on 2/13/04. While the declaration is not necessary to overcome the rejections of record utilizing Tsubuko et al., clarification is requested on the following.

Page 2, first full paragraph of the declaration states that Reference Example 2 of Tsubuko et al. was repeated to prepare Resin No. 2 and the same procedure as in example 4 of Yamane et al. was repeated to make an ink composition No. 4. However, it is not clear what Yamane et al. refers to. That is, such a reference does not appear to be of record in the application and thus, it is not clear what reference or disclosure Yamane et al. represents or the relevance of the reference to the present invention.

Further, in the first paragraph of page 2 of the declaration, applicants state that the same procedure of Yamane et al. was used to make ink composition No. 4 as described below while the last paragraph of page 2 discloses that the same procedure as in Example 4 of Tsubuko et al. was repeated to make ink composition No. 4. Given the two different references to ink composition No. 4 which appear to be prepared in two different ways, i.e. by method of Yamane et al. and by method of Tsubuko et al., it is not clear if there are two different ink composition No. 4 or if they are the same. Clarification is requested.

Further, page 3, paragraph (2.1) of the declaration states that the same evaluation tests as in example 1 of the present specification were conducted, but it is not clear what ink was evaluated. If the ink evaluated in Experiment 1 is the ink set forth on the top of page 3 of the declaration, it is not clear how this ink is different from the ink evaluated in Experiment 2

Art Unit: 1714

(paragraph 2.2). That is, both Experiment 1 and Experiment 2 appear to evaluate the same ink, i.e. ink composition No. 4, in terms of the same evaluations, i.e. sediment, printing stability, and re-dischargeability. Thus, it is not clear what the difference is between Experiment 1 and Experiment 2. What inks are tested in each experiment? Clarification is requested.

Allowable Subject Matter

5. Claims 6-7 and 16-17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 6-7 and 16-17 would be allowable if re-written in independent form as described above given that there is no disclosure or suggestion in the "closest" prior art Ikeda et al. (U.S. 5,952,429) that the ink comprises silicone-based solvent or that the silicone graft copolymer is crosslinked.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

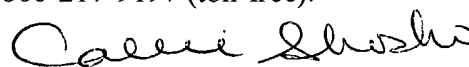
Art Unit: 1714

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714